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EXAMINER	
LOO, JUVENA W	
ART UNIT	**PAPER NUMBER**
2609	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/721,403	HOSEIN, PATRICK A.	
	Examiner	Art Unit	
	Juvena W. Loo	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *13-23 and 36-44* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-11,24-30 and 32-34* is/are rejected.

7)☒ Claim(s) *8,12,31 and 35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is in response to application filed on November 25, 2003 in which claims 1 to 44 are presented for examination.

Status of Claims

Claims 1 - 44 are pending, of which claims 1, 13, 20, 24, 36, and 42 are in independent form.

Election/Restrictions

1. Applicant's election with traverse of Group 1 (claims 1 - 12 and 24 - 35) in the reply filed on June 29, 2007 is acknowledged. The traversal is on the ground(s) that Group 1 does not belong in subclass 370/328. This is not found persuasive because the mobile is roaming and sending reverse link rate requests to the base station. Therefore, the classification is appropriate. Furthermore, each group must be separately searched and it is a burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1 - 7, 9 – 10, 24 – 30, and 32 – 33 are rejected under 35 U.S.C. 102(e) as being unpatentable by Nanda et al. (US 2004/0160922 A1).

Regarding claim 1, Nanda discloses a method of reverse link rate control at a mobile station comprising:

determining targeted queuing delays for reverse link transmit data (Page 4, sections 0025 and 0027: once the service or communication flow is admitted, the mobile station (MS) is aware of the negotiated quality of service (QoS) parameters, such as the acceptable data rate and the maximum delay. Data packets admitted at the MS are placed in a queue and each packet received is associated with a deadline (the targeted delay) that is based on the packet arrival time and the maximum permitted delay for that service);

monitoring of transmit data queue sizes and reverse link throughput (Page 4, section 0027: data packets are put in the output queue and the MS may arrange the output queue such that packets are stored in the order of their deadlines. The MS manages its transmission schedule to ensure that packets are transmitted before their deadlines); and

generating of reverse link rate requests based on the transmit data queue sizes, the reverse link throughput, and the targeted queuing delays (Page 5, sections 0034 –

0037; Page 7, sections 0048 – 0052, and 0056; Page 8 section 0064: using the packet sizes in the queue and allocated rate, the transmission delays (expected delays) can be determined and compared to deadlines (targeted delays). If the mobile station determines that any packet in its queue would miss its deadline at the current rate, then it may require a higher rate. The mobile station is able to determine a required rate by examining the delay deadlines and based on the required data rate, the mobile station continuously sends rate requests (increase, decrease, or leave unchanged) to the base station).

Regarding claim 2, Nanda discloses all the limitations of claim 1. Additionally, Nanda discloses the determination of targeted queuing delays for reverse link transmit data comprises of determining a targeted queuing delay for each service instance being supported by the mobile station (Page 4, sections 0024, 0025, and 0027: a different requirement may be set for each service at a mobile station (MS). Once the service or communication flow is admitted, the mobile station is aware of the negotiated quality of service (QoS) parameters, such as the acceptable data rate and the maximum delay, associated with the service. Data packets admitted at the MS are placed in a queue and a deadline (targeted delay), based on the packet arrival time and the maximum permitted delay, is associated with each packet).

Regarding claim 3, Nanda discloses all the limitations of claim 2. Additionally, Nanda discloses the method of monitoring transmit data queue sizes and reverse link throughput comprises monitoring a transmit data queue size and a reverse link throughput for each service instance (Page 4, sections 0027 and 0033: data packets are put in the output queue and the MS may arrange the output queue such that packets are stored in the order of their deadlines (targeted delays). The MS manages its transmission schedule to ensure that packets are transmitted before their deadlines).

Regarding claim 4, Nanda discloses all the limitations of claim 3. Additionally, Nanda discloses generating reverse link rate requests based on the transmit data queue sizes, the reverse link throughput, and the targeted queuing delays comprises determining whether an expected queuing delay of any service instance exceeds a target queuing delay for that service instance and, if so, requesting a reverse link rate increase (Page 5, sections 0034 – 0037; Page 7, sections 0048 – 0052, and 0056; Page 8 section 0064: using the packet sizes in the queue and allocated rate, the transmission delays (expected delays) can be determined and compared to deadlines (targeted delays). If the mobile station determines that any packet in its queue would miss its deadline at the current rate, then it may require a higher rate. The mobile station is able to determine a required rate by examining the delay deadlines and based on the required rate, the mobile station sends a "increase", "decrease", or "leave unchanged" rate requests to the base station).

Regarding claim 5, Nanda discloses all the limitations of claim 3. Additionally, Nanda discloses generating reverse link rate requests based on the transmit data queue sizes, the reverse link throughput, and the targeted queuing delays comprises determining whether expected queuing delays for all service instances are below target queuing delays defined for the service instances and, if so, requesting a reverse link rate decrease (Page 5, sections 0034 – 0037; Page 7, sections 0048 – 0052, and 0056; Page 8 section 0064: using the packet sizes in the queue and allocated rate, the transmission delays (expected delays) can be determined and compared to deadlines (targeted delays). If the mobile station determines that any packet in its queue would miss its deadline at the current rate, then it may require a higher rate. The mobile station is able to determine a required rate by examining the delay deadlines and based on the required rate, the mobile station continuously sends rate requests (increase, decrease, or leave unchanged) to the base station).

Regarding claim 6, Nanda discloses all the limitations of claim 2. Additionally, Nanda discloses determining a targeted queuing delay for each service instance being supported by the mobile station comprises receiving service instance delay requirements from a wireless communication network supporting the mobile station (Page 3, section 0023; Page 4, sections 0025 and 0027: the base station manages admission control and allocates negotiated quality of service (QoS). Once the service

or communication flow is admitted, the mobile station (MS) is aware of the negotiated QoS parameters, such as the acceptable data rate and the maximum delay. Data packets admitted at the MS are placed in a queue and each packet received is associated with a deadline (the targeted delay) that is based on the packet arrival time and the maximum permitted delay for that service).

Regarding claim 7, Nanda discloses all limitations of claim 1. Additionally, Nanda discloses generating reverse link rate requests based on the transmit data queue sizes, the reverse link throughput, and the targeted queuing delays comprises generating reverse link rate requests on an event-triggered basis by comparing expected queuing delays for each of one or more service instances to targeted queuing delays associated with those service instances (Page 5, sections 0034 – 0037; Page 7, sections 0048 – 0052, 0056, and 0062; Page 8 section 0064: using the packet sizes in the queue and allocated rate, the transmission delays (expected delays) can be determined and compared to deadlines (targeted delays). A rate request from the mobile station is triggered whenever there is a significant change in the required rate. The mobile station is able to determine a required rate by examining the delay deadlines and based on the required rate, the mobile station continuously sends a "increase", "decrease", or "leave unchanged" rate requests to the base station).

Regarding claim 9, Nanda discloses all limitations of claim 1. Additionally, Nanda discloses generating reverse link rate requests based on the transmit data queue sizes, the reverse link throughput, and the targeted queuing delays comprises generating periodic rate requests based on, in each rate control period, determining a data rate needed substantially to meet targeted queuing delays in the next rate control period for each service instance being supported by the mobile station (Page 5, sections 0034 – 0037; Page 7, sections 0048 – 0052, 0056, and 0062: using the packet sizes in the queue and allocated rate, the transmission delays (expected delays) can be determined and compared to deadlines (targeted delays). A rate request from the mobile station is triggered whenever there is a significant change in the required rate. The mobile station is able to determine a required rate by examining the delay. To manage quality of service, the mobile station sends periodic rate request messages to the base station).

Regarding claim 10, Nanda discloses all limitations of claim 9. Additionally, Nanda discloses determining a data rate needed substantially to meet targeted queuing delays in the next rate control period for each service instance being supported by the mobile station comprises:

for each service instance, computing a data rate required to meet the targeted queuing delay for that service instance in the next rate control period (Page 4, sections 0025 – 0028: each packet that is admitted to the mobile station is put in an output queue. A deadline (targeted delay) is associated with each packet based on the packet

arrival time and the maximum permitted delay for the service. Based on the deadlines associated with the packets in the output queue, the mobile station determines a required data rate); and

calculating an aggregate data rate based on the data rates computed for the service instances being supported by the mobile station (Page 4, section 0033: the mobile station determines the required data rate to satisfy the quality of service (QoS) for each service. The mobile station merges queues (rates) for multiple QoS services into a rate requirement).

Regarding claim 24, Nanda discloses a mobile station (Figure 1, 102) for use in a wireless communication network (Figure 1) comprising:

a receiver circuit (Figure 2) to receive signals transmitted by the network;

a transmitter circuit (Figure 3) to transmit signals, including rate requests, to the network; and a rate controller circuit (Figure 3, 303) configured to:

determine targeted queuing delays for reverse link transmit data (Page 4, sections 0025 and 0027: once the service or communication flow is admitted, the mobile station (MS) is aware of the negotiated quality of service (QoS) parameters, such as the acceptable data rate and the maximum delay. Data packets admitted at the MS are placed in a queue and each packet received is associated with a deadline (the targeted

delay) that is based on the packet arrival time and the maximum permitted delay for that service);

monitor transmit data queue sizes and reverse link throughput at the mobile station (Page 4, section 0027: data packets are put in the output queue and the MS may arrange the output queue such that packets are stored in the order of their deadlines. The MS manages its transmission schedule to ensure that packets are transmitted before their deadlines); and

generate reverse link rate requests based on the transmit data queue sizes, the reverse link throughput, and the targeted queuing delays (Page 5, sections 0034 – 0037; Page 7, sections 0048 – 0052, and 0056; Page 8 section 0064: using the packet sizes in the queue and allocated rate, the transmission delays (expected delays) can be determined and compared to deadlines (targeted delays). If the mobile station determines that any packet in its queue would miss its deadline at the current rate, then it may require a higher rate. The mobile station is able to determine a required rate by examining the delay deadlines and based on the required data rate, the mobile station continuously sends rate requests (increase, decrease, or leave unchanged) to the base station).

Regarding claim 25, Nanda discloses all the limitations of claim 24. Additionally, Nanda discloses the rate controller circuit is configured to determine targeted queuing delays for reverse link transmit data by determining a targeted queuing delay for each

service instance being supported by the mobile station (Page 4, sections 0024, 0025, and 0027: a different requirement may be set for each service at a mobile station (MS). Once the service or communication flow is admitted, the mobile station is aware of the negotiated quality of service (QoS) parameters, such as the acceptable data rate and the maximum delay, associated with the service. Data packets admitted at the MS are placed in a queue and a deadline (targeted delay), based on the packet arrival time and the maximum permitted delay, is associated with each packet).

Regarding claim 26, Nanda discloses all the limitations of claim 25. Additionally, Nanda discloses the rate controller circuit is configured to monitor transmit data queue sizes and reverse link throughput at the mobile station by monitoring a transmit data queue size and a reverse link throughput for each service instance (Page 4, sections 0027 and 0033: data packets are put in the output queue and the MS may arrange the output queue such that packets are stored in the order of their deadlines (targeted delays). The MS manages its transmission schedule to ensure that packets are transmitted before their deadlines).

Regarding claim 27, Nanda discloses all the limitations of claim 26. Additionally, Nanda discloses the rate controller circuit is configured to generate reverse link rate requests based on the transmit data queue sizes, the reverse link throughput, and the targeted queuing delays by determining whether an expected queuing delay of any

service instance exceeds a target queuing delay for that service instance and, if so, requesting a reverse link rate increase (Page 5, sections 0034 – 0037; Page 7, sections 0048 – 0052, and 0056; Page 8 section 0064: using the packet sizes in the queue and allocated rate, the transmission delays (expected delays) can be determined and compared to deadlines (targeted delays). If the mobile station determines that any packet in its queue would miss its deadline at the current rate, then it may require a higher rate. The mobile station is able to determine a required rate by examining the delay deadlines and based on the required rate, the mobile station sends a "increase", "decrease", or "leave unchanged" rate requests to the base station).

Regarding claim 28, Nanda discloses all the limitations of claim 26. Additionally, Nanda discloses the rate controller circuit is configured to generate reverse link rate requests based on the transmit data queue sizes, the reverse link throughput, and the targeted queuing delays by determining whether expected queuing delays for all service instances are below target queuing delays defined for the service instances and, if so, requesting a reverse link rate decrease (Page 5, sections 0034 – 0037; Page 7, sections 0048 – 0052, and 0056; Page 8 section 0064: using the packet sizes in the queue and allocated rate, the transmission delays (expected delays) can be determined and compared to deadlines (targeted delays). If the mobile station determines that any packet in its queue would miss its deadline at the current rate, then it may require a higher rate. The mobile station is able to determine a required rate by examining the

delay deadlines and based on the required rate, the mobile station continuously sends rate requests (increase, decrease, or leave unchanged) to the base station).

Regarding claim 29, Nanda discloses all limitations of claim 25. Additionally, Nanda discloses the rate controller circuit is configured to determine a targeted queuing delay for each service instance being supported by the mobile station by receiving service instance delay requirements from a wireless communication network supporting the mobile station (Page 3, section 0023; Page 4, sections 0025 and 0027: the base station manages admission control and allocates negotiated quality of service (QoS). Once the service or communication flow is admitted, the mobile station (MS) is aware of the negotiated QoS parameters, such as the acceptable data rate and the maximum delay. Data packets admitted at the MS are placed in a queue and each packet received is associated with a deadline (the targeted delay) that is based on the packet arrival time and the maximum permitted delay for that service).

Regarding claim 30, Nanda discloses all limitations of claim 24. Additionally, Nanda discloses the rate controller circuit is configured to generate reverse link rate requests based on the transmit data queue sizes, the reverse link throughput, and the targeted queuing delays by generating reverse link rate requests on an event-triggered basis by comparing expected queuing delays for each of one or more service instances to targeted queuing delays associated with those service instances (Page 5, sections

0034 – 0037; Page 7, sections 0048 – 0052, 0056, and 0062; Page 8 section 0064: using the packet sizes in the queue and allocated rate, the transmission delays (expected delays) can be determined and compared to deadlines (targeted delays). A rate request from the mobile station is triggered whenever there is a significant change in the required rate. The mobile station is able to determine a required rate by examining the delay deadlines and based on the required rate, the mobile station continuously sends a "increase", "decrease", or "leave unchanged" rate requests to the base station).

Regarding claim 32, Nanda discloses all limitations of claim 24. Additionally, Nanda discloses the rate controller circuit is configured to generate reverse link rate requests based on the transmit data queue sizes, the reverse link throughput, and the targeted queuing delays by generating periodic rate requests based on, in each rate control period, determining a data rate needed substantially to meet targeted queuing delays in the next rate control period for each service instance being supported by the mobile station (Page 5, sections 0034 – 0037; Page 7, sections 0048 – 0052, 0056, and 0062: using the packet sizes in the queue and allocated rate, the transmission delays (expected delays) can be determined and compared to deadlines (targeted delays). A rate request from the mobile station is triggered whenever there is a significant change in the required rate. The mobile station is able to determine a required rate by examining the delay. To manage quality of service, the mobile station sends periodic rate request messages to the base station).

Regarding claim 33, Nanda discloses all the limitations of claim 32. Additionally, Nanda discloses the rate controller circuit is configured to determine a data rate needed substantially to meet targeted queuing delays in the next rate control period for each service instance being supported by the mobile station by:

for each service instance, computing a data rate required to meet the targeted queuing delay for that service instance in the next rate control period Page 4, sections 0025 – 0028: each packet that is admitted to the mobile station is put in an output queue. A deadline (targeted delay) is associated with each packet based on the packet arrival time and the maximum permitted delay for the service. Based on the deadlines associated with the packets in the output queue, the mobile station determines a required data rate); and

calculating an aggregate data rate based on the data rates computed for the service instances being supported by the mobile station (Page 4, section 0033: the mobile station determines the required data rate to satisfy the quality of service (QoS) for each service. The mobile station merges queues (rates) for multiple QoS services into a rate requirement).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 11 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanda et al. (US 2004/0160922 A1) in view of Toskala et al. (US 2003/0219037 A1).

Regarding claim 11, Nanda discloses all the limitations of claim 10. However, Nanda fails to teach that selecting a data rate from a set of defined data rates based on the calculated aggregate data rate and requesting the selected data rate.

In the same field of endeavor, Toskala discloses the mobile station selects a data rate from a set of defined rates (Toskala: Page 2, section 0022: the mobile station transmits data together with a rate change request asking for an increase in rate, decrease in rate, the maximum rate in the range, or sets of rates from which the mobile station selects a rate), and requesting the selected one of the defined data rates for the next rate control period (Toskala: Page 2, section 0022: the mobile station transmits data together with a rate change request asking for an increase in rate, a decrease in rate, the maximum rate in the range, or sets of rates from which the mobile station selects a rate). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the set of predefined data rates into the system of Nanda. The motivation would have been in providing a selectable fixed data rate.

Regarding claim 34, Nanda discloses all the limitations of claim 33. However, Nanda fails to teach that selecting a data rate from a set of defined data rates based on the calculated aggregate data rate and requesting the selected data rate.

In the same field of endeavor, Toskala discloses the mobile station selects a data rate from a set of defined rates (Toskala: Page 2, section 0022: the mobile station transmits data together with a rate change request asking for an increase in rate, decrease in rate, the maximum rate in the range, or sets of rates from which the mobile station selects a rate), and requesting the selected one of the defined data rates for the next rate control period (Toskala: Page 2, section 0022: the mobile station transmits data together with a rate change request asking for an increase in rate, a decrease in rate, the maximum rate in the range, or sets of rates from which the mobile station selects a rate). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the set of predefined data rates into the system of Nanda. The motivation would have been in providing a selectable fixed data rate.

Allowable Subject Matter

6. Claims 8, 12, 31, and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 8 and 31, the prior arts include periodic reverse link rate requests to manage maximum delay (Nanda: Page 7, section 0062). However, they fail to teach the method of using periodic reverse link rate requests to control an average queuing delay relative to a targeted queuing delay.

Regarding claims 12 and 35, the prior arts include using one or more combinations of defined data rates (Toskala: Page 2, section 0023). However, they fail to teach the method of calculating an effective data rate from the required data rate and that can be achieved using one or more combinations of defined data rates.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juvena W. Loo whose telephone number is (571) 270-1974. The examiner can normally be reached on Mon.-Thurs : 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Coby can be reached on (571) 272-4017. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juvena W Loo
Examiner
Art Unit 2609

Frantz Coby

FRANTZ COBY
SUPERVISORY PATENT EXAMINER